

REMARKS

Claims 1, 5-7 and 16-18 are pending and under consideration.

In the Office Action of August 18, 2011, claims 1 and 5-7 were rejected under 35 U.S.C. § 102(b) as being anticipated by the non-patent literature document entitled “Large-scale rooted growth of aligned super bundles of single-walled carbon nanotubes using a directed arc plasma method” (authored by Huang et al.; hereinafter “Huang-1”) as evidenced by the non-patent literature document entitled “High-quality double walled carbon nanotube super bundles grown in a hydrogen-free atmosphere” (authored by Huang et al.; hereinafter “Huang-2”); claims 1 and 5-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Huang-1 in view of Huang-2; claim 6 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The drawings were objected to for informalities.

In response, and without conceding the merits of the rejections, claims 1 and 6 have been amended to address the noted rejections; claims 8-15 have been canceled without prejudice; claims 16-18 have been added. Applicants respectfully traverse the rejections and request reconsideration.

Regarding the objection to the drawings, the Office Action asserts that the polarities of the battery or current source in Fig. 1 should be reversed since electrode 3 is an anode (negatively charged) and electrode 2 is a cathode (positively charged). Applicants respectfully disagree with the assertion. It is known in the art that the polarity of cathode or anode depends on the device type. As evidenced by the dictionary, “cathode” is “the electrode of an electrochemical cell at which reduction occurs: a. the negative terminal of an electrolytic cell, b. the positive terminal of a galvanic cell,” and “anode” is “the electrode of an electrochemical cell at which oxidation occurs: a. the positive terminal of an electrolytic cell, b. the negative terminal of a galvanic cell.” *See*, “cathode,” “anode.” *Merriam-Webster.com*. 2011. <http://www.merriam-webster.com> (November 2, 2011). In the instant application, because the manufacturing device in Fig. 1 forms an electrolytic cell, the polarities of electrodes 2, 3 shown in Fig. 1 are deemed to be correct. Accordingly, Applicants respectfully obviate the objection to the drawings.

Regarding the art based rejections, independent claim 1 has been amended to indicate that “the catalyst includes particles composed of metal sulfide.” New claims 16

and 17 further require that the metal sulfide includes NiS, CoS, and FeS at a ratio of 1:1:1. Support may be found, among other places, at paragraphs 0033 and 0057 of the published instant application (U.S. 2008/0124502). At least this feature is not anticipated or obvious in view of the cited art.

Huang-1 is directed to producing single-walled carbon nanotubes (SWCN) as opposed to double-walled carbon nanotubes (DWCN). The catalyst used in Huang-1 (i.e., metal catalyst including Co, Ni, Fe, and Ce) is for growing SWCN and thus, is different from the claimed catalyst. *See*, Sec. 2 of Huang-1. Thus, Huang-1 fails to teach or fairly suggest the above-mentioned feature.

As to Huang-2, Applicants respectfully submit that the foreign priority date on record of the instant application (July 15, 2003) is no later than the publication date of Huang-2 (July 15, 2003), and thus, Huang-2 is not prior art under 35 U.S.C. § 102 (a) or 35 U.S.C. § 103 (a). A certified translation of the foreign priority application JP 2003-197339 is provided with this response in accordance with 37 CFR 1.55 to perfect the priority claim.

Because claims 5-7 and 16-18 either directly or indirectly, depend from claim 1, they are allowable for at least the same reasons as claim 1. The dependent claims also add additional novel and non-obvious subject matter.

In view of the foregoing, it is submitted that of claims 1, 5-7 and 16-18 are allowable over the cited art and that the application is in condition for allowance. Notice to that effect is requested.

If any additional fees are required for the prosecution of the application, please charge the fees to Deposit Account Number 19-3140 referencing work order number 09792909-6573.

Respectfully submitted,

Dated: November 18, 2011

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